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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,419	08/13/2001	Yura Hirofumi	33550	4225

116 7590 04/14/2003  
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EXAMINER

WHITE, EVERETT NMN

ART UNIT	PAPER NUMBER
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1623

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DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/831,419

Applicant(s)

HIROFUMI ET AL.

Examiner

EVERETT WHITE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 13-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 13-26 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

- a) ☐ The translation of the foreign language provisional application has been received.

- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

1. ☐ Notice of References Cited (PTO 1449)  
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO 1449)  
3. ☐ Information Disclosure Statement(s) (PTO 1449) Paper No(s) \_\_\_\_\_

4. ☐ International Preliminary Report on Patentability (PCT 1449)  
5. ☐ Notice of Allowance/Patent Application (PTO 1449)  
6. ☐ Other \_\_\_\_\_

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## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

For Groups I-VI, the claims are directed to a functional chitosan derivative characterized by being formed by incorporating to an at least partially deacetylated chitin/chitosan at least two functional groups selected from:

- (a) a carbohydrate having a reducing terminal being incorporated to an amino group at the 2-position of a glucosamine unit constituting said chitin/chitosan; (13-17, 25, 26)
- (b) a photo-reactive functional group being incorporated to an amino group at the 2-position of a glucosamine unit constituting said chitin/chitosan; (13, 18, 19, 25, 26)
- (c) an amphipathic group being incorporated to an amino group at the 2-position of a glucosamine unit constituting said chitin/chitosan or a hydroxyl group at the 3-position or 6-position of a glucosamine unit or acetylglucosamine unit constituting said chitin/chitosan; and (13, 20-22, 25, 26)
- (d) a glycosaminoglycan being incorporated to an amino group at the 2-position of a glucosamine unit constituting said chitin/chitosan. (13, 23, 25, 26)

Accordingly, Groups I-VI have been separated based on at least two specific functional groups that are listed in Claim 13.

Group I, claim(s) 13-19, 25 and 26 drawn to a functional chitosan derivative and a

Group II, claim(s) 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 drawn to a functional chitosan derivative and a health-care material comprising functional groups (a) and (c)

Group III, claim(s) 13-17, 20-22, 25 and 26 drawn to a functional chitosan derivative and a health-care material comprising functional groups (a) and (d)

Group IV, claim(s) 13, 18, 19, 20-22, 25 and 26 drawn to a functional chitosan derivative and a health-care material comprising functional groups (b) and (c).

Group V, claim(s) 13, 18, 19, 20-23, 25 and 26 drawn to a functional chitosan derivative and a health-care material comprising functional groups (b) and (d).

Group VI, claim(s) 13, 20-23, 25 and 26 drawn to a functional chitosan derivative and a health-care material comprising functional groups (c) and (d).

Group VII, claim(s) 24 drawn to a functional chitosan derivative and a health-care material comprising at least one functional group.

Group VIII, claim(s) 26, drawn to a medical material for wound dressings, anti-adhesion material, homostatics, sealants for body fluids or gases, clathrates for drug delivery or encapsulating agents for cells adhesive comprising a functional chitosan derivative comprising at least one functional group.

2. The inventions listed as Groups I-VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

PCT Rule 13.2 requires that unity of invention exists only when the share same or corresponding technical feature is a contribution over the prior art. Section (f)(i)(B)(1) of Annex B of the administrative Instruction requires that all alternatives of a Markush Groups have a common structure. Although chemical compounds of Claims 13-26 share a common structure of chitosan, the compounds are not regarded as being of similar nature because the shared common structure is not contribution over the prior art. The "special technical feature" of Group I is a functional chitosan derivative characterized by being from by incorporating to an at least partially deacetylated chitin/chitosan at least two functional groups (Groups (a) and (b) as indicated above) which is shown by Japanese Patent No. 10182332 to lack novelty or inventive step by

over the prior art

The special technical feature of Group II is considered to be a functional chitosan derivative and a health-care material comprising functional groups (a) and (c) as described above

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The special technical feature of Group III is considered to be a functional chitosan derivative and a health-care material comprising functional groups (a) and (d) as described above.

The special technical feature of Group IV is considered to be a functional chitosan derivative and a health-care material comprising functional groups (b) and (c) as described above.

The special technical feature of Group V is considered to be a functional chitosan derivative and a health-care material comprising functional groups (b) and (d) as described above.

The special technical feature of Group VI is considered to be a functional chitosan derivative and a health-care material comprising functional groups (c) and (d) as described above.

The special technical feature of Group VII is considered to be a functional chitosan derivative and a health-care material comprising at least one functional group.

The special technical feature of Group VIII is considered to be a medical material for wound dressings, anti-adhesion material, homostatics, sealants for body fluids or gases, clathrates for drug delivery or encapsulating agents for cells adhesive comprising a functional chitosan derivative comprising at least one functional group.

3. Accordingly, Groups I-VIII are not so linked by the same or corresponding special technical feature as to form a single general inventive concept.

4. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Examiner's Telephone Number, Fax Number, and Other Information***

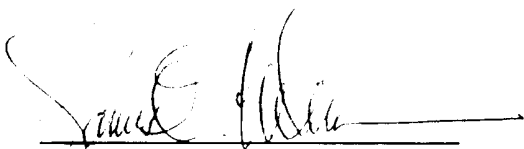
6. For 24 hour access to patent application information 7 days per week, or for filing applications, please visit our website at [www.uspto.gov](http://www.uspto.gov) and click on the button "Patent Electronic Business Center" for more information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is (703) 308-4621. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached on (703) 308-4624. The fax phone number for this Group is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

  
E. White

  
James O. Wilson  
Supervisory Primary Examiner  
Technology Center 1600